



- (72) KATZ, Joseph M., US  
(72) RUSH, William F., Jr., US  
(72) TAMOSAITS, Victor, US  
(71) INSTITUTE OF GAS TECHNOLOGY, US  
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(54) **METHODE POUR L'APPLICATION D'UN REVETEMENT  
PROTECTEUR POLYMERIQUE**  
(54) **METHOD FOR APPLICATION OF PROTECTIVE POLYMER  
COATING**

(57) A process for application of a protective coating to a steel, concrete, or wooden structure so as to provide protection against corrosion, weathering, or other environmental damage in which the surface to be protected is heated to a temperature in a range of about 75°F to about 150°F after which a liquid thermoset primer is applied to the heated material in two stages. The first portion is solidified by heating and then coated with a second portion, forming an uncured liquid thermoset outer primer layer. A melted polymer powder layer is then applied by flamespraying over the uncured liquid thermoset primer layer, forming an intermediate polymer powder layer embedded in the uncured liquid thermoset primer layer. The intermediate melted polymer powder layer is then heated to a flow temperature of the polymer powder and a second layer of melted polymer powder is applied over the intermediate polymer powder layer, forming an outer melted polymer powder layer which then cools to form the final protective coating.



### ABSTRACT OF THE DISCLOSURE

A process for application of a protective coating to a steel, concrete, or wooden structure so as to provide protection against corrosion, weathering, or other environmental damage in which the surface to be protected is heated to a temperature in a range of about 75°F to about 150°F after which a liquid thermoset primer is applied to the heated material in two stages. The first portion is solidified by heating and then coated with a second portion, forming an uncured liquid thermoset outer primer layer. A melted polymer powder layer is then applied by flamespraying over the uncured liquid thermoset primer layer, forming an intermediate polymer powder layer embedded in the uncured liquid thermoset primer layer. The intermediate melted polymer powder layer is then heated to a flow temperature of the polymer powder and a second layer of melted polymer powder is applied over the intermediate polymer powder layer, forming an outer melted polymer powder layer which then cools to form the final protective coating.

WE CLAIM:

1. A process for application of a protective coating to a substrate material comprising:

applying a first portion of a liquid thermoset primer to a substrate material;

solidifying said first portion of said liquid thermoset primer;

applying a second portion of said liquid thermoset primer to said substrate material over said solidified liquid thermoset primer, forming an uncured liquid thermoset primer layer;

applying a melted polymer powder over said uncured liquid thermoset primer layer, forming an intermediate polymer powder layer embedded in said uncured liquid thermoset primer layer;

heating said intermediate polymer powder layer to a flow temperature of said polymer powder;

applying a second said melted polymer powder layer over said intermediate polymer powder layer, forming an outer melted polymer powder layer; and

cooling said outer melted polymer powder layer, forming a final coating layer.

2. A process in accordance with Claim 1, wherein said substrate is heated to a temperature in a range of about 75°F to about 150°F prior to application of said liquid thermoset primer.

3. A process in accordance with Claim 1, wherein said substrate material is selected from the group consisting of metal, concrete, and wood.

4. A process in accordance with Claim 1, wherein said intermediate melted polymer powder layer and said outer melted polymer powder layers are applied by flame spraying.

5. A process in accordance with Claim 1, wherein said liquid thermoset primer comprises a diluent.

6. A process in accordance with Claim 1, wherein said liquid thermoset primer is applied to said substrate by one of pouring and spreading, brushing and spraying.

7. A process in accordance with Claim 1, wherein said liquid thermoset primer layer has a thickness in a range of about 2 to about 40 mils.

8. A process in accordance with Claim 1, wherein said intermediate polymer powder layer has a thickness in a range of about 1 to about 5 mils.

9. A process in accordance with Claim 1, wherein said outer melted polymer powder layer has a thickness in a range of about 10 to about 80 mils.